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ABSTRACT

Adolescent use of marijuana and tobacco has increased throughout the 1990s. Perhaps as a part of this trend, increasingly there have been reports of adolescents who use marijuana or tobacco cigarettes dipped in embalming fluid. Unfortunately, most of these reports involve young people coming for drug treatment, many of whom were incoherent. The purpose of this report is to increase the knowledge level of embalming fluid by synthesizing the literature on the subject; reporting on interviews with law enforcement officials, funeral directors, and other community members; and interviewing 20 Houston adolescents who use embalming fluid. The findings that emerge from this investigation are that the embalming fluid compound found on the street contains PCP (phencyclidine) and that adolescents do not know this. Treatment providers are also hampered from knowing how to treat people who have overdosed or who are suffering from long-term effects. In its pure form, embalming fluid is often diverted from morgues and funeral homes, although the substance also may be purchased directly from chemical companies. The report recommends providing alerts for treatment professionals and education for users who receive treatment. A glossary of slang terms and materials from the Connecticut prevention campaign are appended. (Contains 34 references.) (EMK)

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TCADA

Research Brief:



"Fry:" A Study of Adolescents' Use of Embalming Fluid with Marijuana and Tobacco

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Table of Contents

Executive Summary	1
Introduction	1
Data and Method	2
Presentation of Data	3
What is Embalming Fluid?	3
Embalming Fluid and Marijuana: How is the Combination Distributed?	6
Who uses Fry?	8
How is Fry Consumed?	10
What are the Immediate Effects?	10
What are the Short-Term Effects?	12
What are the Long-Term Effects?	12
Discussion	12
Limitations	13
Implications	14
Literature Cited	15
Appendices	18
Appendix A: Glossary of Related Slang Terms	18
Appendix B: Materials from the Connecticut Campaign	20

"Fry:" A Study of Adolescents' Use of Embalming Fluid with Marijuana and Tobacco

Executive Summary

The findings that emerge from this investigation are that the embalming fluid compound found on the street contains PCP and that adolescents do not know this.

Adolescent use of marijuana and tobacco has continued to rise throughout the 1990s (Liu, 1997; Mathias, 1997). Perhaps as a part of this trend, there have been growing reports of adolescents who use marijuana or tobacco cigarettes dipped in embalming fluid. Unfortunately, most of these reports involve young people presenting for drug treatment, many of whom were incoherent. The purpose of this report is to increase our knowledge of embalming fluid by synthesizing the literature on the subject; reporting on interviews with law enforcement officials, funeral directors, and other community members; and interviewing 20 Houston adolescents who use embalming fluid. The findings that emerge from this investigation are that the embalming fluid compound found on the street contains PCP and that adolescents do not know this. Treatment providers are also hampered from knowing how to treat people who have overdosed or who are suffering from long-term effects. In its pure form, embalming fluid is often diverted from morgues and funeral homes, although the substance also may be purchased directly from chemical companies. The report closes with recommendations including alerts for treatment professionals and education for users who receive treatment.

Introduction

Adolescent use of marijuana has escalated throughout this decade. The National Household Survey on Drug Abuse found a 140 percent jump in marijuana use by youths aged 12 to 17 between 1992 and 1995 (Johnson, 1997). In fact, the increase in current marijuana use by Texas eighth grade students was higher than national trends (Liu, 1997, p. 24). Although lifetime tobacco use among Texas secondary students remained relatively stable in the 1990s, both annual and current tobacco use increased by 14 percent between 1990 and 1996, particularly among tenth grade users (Liu, p. 29). Given this increase in the use of the "gateway" drugs—tobacco and marijuana, it is perhaps not surprising that there has been an increase in the use of other illegal drugs by young people. Among these drugs is "fry," a generic term referring to marijuana cigarettes, marijuana-laced cigars, or tobacco cigarettes or cigars soaked in embalming fluid laced with PCP. This report includes the following sections: description of the study, data and method, presentation of data,

and discussion in which the study's limitations and implications will be discussed.

Data and Method

Participants were encouraged to elaborate on topics that appeared to contain information relevant to the study.

Data for this report come from various sources. First, a comprehensive literature search of medical, psychological, and social sciences journals and local print media was conducted. Second, the author interviewed knowledgeable members of the community, including law enforcement officials, news reporters, funeral home directors and employees, treatment providers, and nail stylists. Third, the author conducted in-depth guided interviews (Parker & Carballo, 1990) with 20 adolescents (ages 15-22) who smoked embalming fluid with marijuana in the month prior to their interviews. An in-depth guided interview is a semi-structured interview that uses an open-ended question format. This interviewing structure acknowledges the ethnographic inquiry tenet that, except under unusual circumstances, the research participant is the instrument (Lincoln & Guba, 1985, p. 250). Nevertheless, data also must be collected systematically; the in-depth guided interview provides a balance between the two. Within this format, the investigator encourages the respondent to expand on topics mentioned by the respondent that may provide additional insight into the use of embalming fluid with tobacco or marijuana, and the consumption of other drugs. In this manner, guided in-depth interviews collect data standardized with regard to subject matter and also allow collection of data that may not have been anticipated. The audiotaping of interviews allows the investigator to reproduce the data exactly as it was collected (Lincoln & Guba, 1985) and, thus, analyze the research participants' actual descriptions. The investigator used an interview guide of issue areas formulated by the author and TCADA officials, and received informed consent from all participants before data collection commenced.

Data were collected using a semi-structured interview guide, which included questions concerning sociodemographic characteristics, drug history, the making of marijuana cigarettes and cigars, and embalming fluid use and its effects. While the semi-structured guide served as a prompt and guide for the interviewer, participants were encouraged to elaborate on topics that appeared to contain information relevant to the study. Interviews were audio recorded and transcribed verbatim into text files. Text files were content coded using a subjective/objective analytical strategy (Maxwell, 1996). The coding scheme itself was derived from the Outline of Cultural Materials (OCM), "a manual which presents a comprehensive subject classification system pertaining to all aspects of human behavior and related phenomena" (Murdock et al., 1985, p. xi). Although originally created by and for anthropologists, the OCM was

revised in its fifth edition for research in "psychology, sociology, political science, economics, geography, and general science," and can be adapted for use on individual studies (p. xi). For example, the OCM includes only one code, 276, for "narcotics and stimulants—drugs consumed for nontherapeutic purposes" (p. 33). We expanded this one code through additional letters and numbers for such phenomena as "effects/actions attributed to drug use" (276A), "marijuana" (276B6), and "embalming fluid" (276B7e).

Interviews were coded searching expressly for sociodemographic characteristics, drug history, the making of marijuana cigarettes and cigars, and embalming fluid use and its effects. Subjective analytical coding criteria were developed based on the principles of grounded theory (Glaser & Strauss, 1967). Coded data were assessed for behavioral patterns that became apparent as data were analyzed. Data that best illustrate analytical patterns were excerpted for presentation in the text below. In presentation of the data, the one or two-digit codes following data excerpts represent unique participant identifiers, such as (6) or (11).

Presentation of Data

What is Embalming Fluid?

*Embalming fluid
which is used in
conjunction with
marijuana or
tobacco is a
compound of
formaldehyde,
methanol, ethyl
alcohol, and other
solvents.*

Embalming fluid, which is used in conjunction with marijuana or tobacco, is a compound of formaldehyde, methanol, ethyl alcohol or ethanol, and other solvents. The embalming fluid compound that we found on the streets, however, also contained PCP. Given these components, it is not surprising that the users we interviewed reported great euphoria or rage, psychedelic apparitions, sleepiness, and forgetfulness regarding many of their behaviors once the users recovered from the substance's effects.

In its purest form, formaldehyde is a simple organic molecule and exists only as a dilute vapor. While a relatively stable gas in moderate temperatures, formaldehyde spontaneously polymerizes at lower temperatures to form trioxane, a paraformaldehyde, from the linking of eight monomeric units. Above 300°C, it breaks down to form carbon monoxide and water. It is very unstable in water and also is photodegradable. For these reasons, it is marketed alone as formalin, an aqueous solution that is 37 percent to 50 percent formaldehyde by weight with 10 percent to 15 percent methanol added to prevent spontaneous polymerization (Bardana & Montanaro, 1991; Gullickson, 1990).

Methanol, also called methyl alcohol or wood alcohol, is a volatile, pungent, poisonous, flammable alcohol used chiefly as a solvent, anti-freeze and in the synthesis of formaldehyde and other chemicals. When consumed, methanol can cause poisoning. When inhaled, the substance has effects similar to other volatile inhalants.

Embalming fluid is a compound liquid whose predominant compo-

The effects from exposure to embalming fluid include bronchitis, brain damage, lung damage, impaired coordination, and inflammation and sores in the throat, nose, and esophagus.

Illegal supplies of PCP on the street are manufactured in clandestine labs where supplies are of dubious quality and may contain impurities.

nents also include formaldehyde and ethyl alcohol or ethanol, the psychoactive ingredient in alcoholic beverages. In embalming fluid products, the percentage of formaldehyde can range from 5 to 29 percent; ethyl alcohol content can vary from 9 to 56 percent. Embalming fluid also can contain phenol, ethylene glycol, glutaraldehyde. While most of these components are both flammable and irritants, it is interesting to note that ethyl alcohol is a flammable, central nervous system depressant (Wessels, 1997; see also French, 1983). Despite the synthesis of chemicals which increases the stability of embalming fluid, safety instructions strictly direct its storage between the degrees of 35°F and 120°F (Wessels, 1997). The effects from exposure to embalming fluid include bronchitis, body tissue destruction, brain damage, lung damage, impaired coordination, and inflammation and sores in the throat, nose, and esophagus (Bardana & Montanaro, 1991; State of Connecticut, 1994a; Wessels, 1997).

Purchasing embalming fluid on the street is rather difficult, likely because dealers can make substantially more money by selling individual fluid-soaked joints for \$10-\$20 each. Nevertheless, we purchased one, two-ounce sample of embalming fluid on the street from a drug dealer for \$50. The substance was analyzed by both high temperature and low temperature gas chromatography/mass spectroscopy by Lewis Nelson, MD, of the Poison Control Center in New York. The low temperature version identified volatile solvents including methanol, and found ether and bromobenzene—both starting compounds in PCP (phencyclidine) synthesis. The high temperature analysis expressly found phencyclidine components (Nelson, 1997a). Two samples obtained and analyzed in Connecticut found similar results (Pestana, 1997; State of Connecticut, 1994 a&b).

It is important to realize that PCP is not a normal component of embalming fluid, rather an ingredient that has been added to the embalming fluid compound before its distribution on the street. This study could not confirm exactly when or who added PCP to the embalming fluid compound distributed on the street to make fry, although participant reports suggest that independent individuals add PCP to the embalming fluid compound between the stage at which it is diverted and when fry is sold on the streets (see pp. 7-8).

Phencyclidine (PCP) is a dissociative anesthetic with hallucinogenic properties. The drug was previously used as an anesthetic in humans in the 1950s but discontinued because patients became agitated and disoriented after its use. The drug was also used in as an animal tranquilizer but discontinued in 1979. Illegal supplies on the street are manufactured in clandestine labs where supplies are of dubious quality and may contain impurities. Among drug users, PCP can be found as a pure white, crystal-

In Houston, the use of "marijuana cigarettes laced with embalming fluid" appeared in the news in 1992.

like powder, tablet, capsule, or bitter-tasting, clear liquid that is consumed orally, injected, sniffed, or smoked on tobacco or marijuana products. The drug intensifies the effects of other depressants and can cause hallucinations, frightening "out of body" experiences, impaired motor coordination, depression, extreme anxiety, disorientation, paranoia, aggressive behavior and violence, seizures, and respiratory arrest. The drug can cause dependence, and is known on the street as angel dust, crystal, and horse tranquilizer among others (Johnson, 1997).

The use of marijuana dipped in PCP-laced embalming fluid was reported in the early 1970s in and around Trenton, New Jersey (French, 1983). More recently, use of the substance was reported in Hartford and the surrounding state of Connecticut (Capers, 1994; Borrero, 1996). Known there as "illy" (from "Philly" Blunts cigars, or from the knowledge that the combination can make one "ill") or "clickems," the epidemic peaked in 1993-1994. Use by adolescents became so problematic that one gang, the Latin Kings, asked the State Department of Public Health to intervene (Pestana, 1997). Concurrently in 1994, reports to the National Institute on Drug Abuse's Community Epidemiology Work Group from Philadelphia and Washington, D.C. indicated that the increased use of PCP was associated with the growing use of marijuana cigarettes and marijuana-laced cigars, increasingly laced with PCP. At the same time, Los Angeles reported PCP-sprayed tobacco, parsley, or marijuana, and Chicago reported the use of "sherm sticks," cigarettes dipped in PCP and "happy sticks," home-rolled marijuana or tobacco cigarettes sprayed with PCP. PCP was known on the street as "water" (NIDA, 1994). In New York City, PCP was sprinkled on mint or parsley leaves and sold by the bag, while dealers allowed individuals to dip a cigarette into a small container of embalming fluid for \$20 per dip (Frank & Galea, 1994, pp. 152-153). Whether the New York embalming fluid itself contained PCP is unclear.

Use of the PCP-laced embalming fluid and marijuana combination has also reached Texas. In a 1994 survey of youth entering Texas Youth Commission facilities, 3.8 percent reported ever using "wack/fry," while 2.3 percent of participants reported using the substance within their last month of freedom (Fredlund, Farabee, Blair, & Wallisch, 1995, p. 22).

In Houston, the use of "marijuana cigarettes laced with embalming fluid" appeared in the news in 1992. At that time, it was reported that users had turned to the substance because of increased police surveillance regarding cocaine and crack use (Milling, 1992). These treated joints or cigarettes are called most frequently "amp," "fry," or "water-water" (see also Elwood, 1997). Less common names include "formaldehyde," "wet-wet," "wetdaddy," and "drank." Street names apparently have become so

commonly used that they have usurped the chemical names. One participant swore she smoked fry, not marijuana and embalming fluid, because, "I've heard what that stuff [embalming fluid] can do, and I'm not going to touch it" (6).

Reports of the effects of consuming marijuana soaked with the embalming fluid compound are consistent with the effects of tetrahydrocannabinol or THC (the primary psychoactive ingredient in marijuana), PCP, and the chemicals in embalming fluid. It is surprising, however, that none of the adolescents we interviewed listed PCP as one of the psychoactive components in fry, although the hallucinations they reported could not have been the results of the other components. When asked specifically what components they thought caused the effects they recounted, participants listed marijuana and formaldehyde. When asked what other substances they thought were contained in embalming fluid, not one participant listed PCP or any other psychoactive substance. Participants did, however, suspect that embalming fluid was diluted, because, "They cut everything" (17). The most commonly mentioned substance for diluting was an essential substance: "Well, you know they're cutting it with something. Why do you think they call it 'water'?" (11).

Embalming Fluid and Marijuana: How is the Combination Distributed?

*One purchases
"fry sticks" and
"fry sweets" at
the "fry house,"
a neighborhood
house usually used
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Although we were able to purchase a small, two-ounce bottle of embalming fluid on the street for \$50, most young people we interviewed purchased "fry sticks," marijuana joints dipped in embalming fluid laced with PCP, or "fry sweets," Swisher Sweets or Philly Blunt cigars in which the tobacco is replaced with marijuana and dipped in embalming fluid laced with PCP. The price for fry sticks is \$10 per joint, also called a "square," and \$15-\$20 per Swisher Sweet. One purchases "fry sticks" (treated joints) and "fry sweets" (treated Swishers) at the "fry house," a neighborhood house usually used only for drug sales. These establishments are frequently furnished; some adolescents choose to stay and smoke their purchases, particularly if the fry house has video games. The negative aspect of consuming one's purchase at the fry house is that one is expected to share a fry stick with other drug users. Given this community norm, many young people we interviewed chose to purchase their fry sticks and go elsewhere to smoke, particularly if they had planned to share the fry stick with select others.

To make fry sticks, an individual places a number of joints or Swishers (marijuana-laced cigars) on a tray or grate. Having poured embalming fluid into a larger-sized container (e.g., washtub, small aquarium), the dealer dunks the fry sticks into the solution until they are completely saturated. Once the fry sticks have drained sufficiently, and the drainage has been returned to the vat, the sticks are wrapped in

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aluminum foil until purchased. Purchasers frequently find enough drainage on the aluminum foil to treat another joint on their own. An alternate method of selling fry sticks involves dipping the joint or Swisher into a small jar of embalming fluid upon purchase; if a dealer likes a purchaser, he also might dip a ready-made fry stick into a jar for an additional dose. Only three participants, however, mentioned this perquisite (1, 6, 8). Dealers reported similar preparation processes, and also reported diluting the embalming fluid they purchase with ethyl alcohol or water.

According to two participants whose friends sold fry sticks, dealers obtain embalming fluid from distributors on Houston's Near North Side, a working-class neighborhood populated mostly with African American and Hispanics, which also has a fair share of commercial strips, warehouses, and industry. These dealers pay individuals who bring them embalming fluid, generally people who work in hospital or government morgues, and funeral homes (6, 11). This conduct is corroborated by reports from individuals who work in morgues and funeral homes, who informed us that they siphoned small quantities of embalming fluid from 55-gallon drums. When we asked independent and chain funeral home directors about embalming fluid thefts or diversion, they reported that no such activity occurred at their respective establishments. They had received reports from professional associations or fellow directors, however, warning them of the possibility. Two participants, however, reported break-ins at funeral homes and theft of embalming fluid (6, 17). Some directors reported receiving requests from women who wanted to purchase small quantities for their fingernails; they reported denying all such requests (see also Milling, 1992). Consistent with those reports, funeral home employees also rebuffed all telephone or in-person inquiries to purchase embalming fluid by the investigator and one colleague.

Women who reported diverting embalming fluid reported keeping some of it to use on their fingernails, as women from many racial/ethnic communities believe that embalming fluid strengthens fingernails. And, many commercial products sold to strengthen fingernails contain formaldehyde. They also said that they shared some with friends and relatives, sold it to nail salons, and gave it to their boyfriends, husbands, or spouses. Men who reported diverting embalming fluid stated that they would sell it "to some guys off North Main" street (2).

A logical, if unanticipated, method to obtain embalming fluid is through legal purchase. Indeed, an 18-year-old Hispanic male told us that "some stores actually sell it. You tell 'em it's for science class" (11). We used one Anglo male and two females (Anglo and African American) in their 30s to telephone chemical companies to inquire about purchasing formaldehyde. Chemical company representatives stated that they would

not sell the substance to individuals. Given women's requests of funeral homes for formaldehyde, we sent the two women to call on chemical companies to see if they could purchase formaldehyde without making previous telephone inquiries. On their first stop, these women inadvertently called on a chemical firm's corporate office. The receptionist inquired as to the women's interest in purchasing formaldehyde; they responded with the desire to use formaldehyde on their fingernails. The receptionist gave these women the phone number of the firm's warehouse and allowed them to phone from the corporate office. Warehouse personnel offered, without question, to sell the women a 55-gallon drum of formaldehyde. When the women responded that such a drum would not fit in their sedan, warehouse personnel gave them the telephone number of a retail chemical seller to whom they sold formaldehyde in large quantities. At this last establishment, the clerk asked one woman her name, which she placed on the cash receipt, and sold her a one-gallon jug of formaldehyde for \$13.95 plus tax. This clerk followed OSHA procedures and provided the customer with a material safety data sheet; however, she did not request identification or any other information regarding this purchase.

In fact, the only substance participants thought provided a psychoactive effect was embalming fluid.

Regrettably, we were unable to interview the underground distributors reported to be on Houston's Near North Side; however, it is suspected that the distributors add PCP to embalming fluid at this step. Neither the people who diverted embalming fluid nor the fry stick dealers reported adding any psychoactive substances to the solution. Oddly, the street dealers did not suspect the presence of any substances in embalming fluid. In fact, the only substance participants thought provided a psychoactive effect was formaldehyde. Clearly the inclusion of PCP, methanol, and ethyl alcohol in the embalming fluid cocktail are three of the secrets kept regarding the consumption of marijuana with embalming fluid in Houston.

Who Uses Fry?

For this report, 20 adolescents who had smoked embalming fluid at least once in the month prior to their participation were interviewed. Of these, six were Anglo, eight were African American, and six were Hispanic. Eleven males and nine females were interviewed; 10 were between the ages of 15 and 17, and 10 were between the ages of 18 and 22. Many of the African Americans we interviewed believed that fry was a "Black thing" (4), or a substance smoked mainly by "hoodlums" (9) and gang members. According to a 16-year-old African American female, "All the kids in Third Ward smoke it; you can even get it at school" (1). Unlike their African American counterparts, however, Anglo and Hispanic adolescents were more likely to believe that fry was something most

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young people smoked or at least tried: "Kids are just more likely to try stuff, unlike old folks," according to a 16-year-old Anglo female (7).

Fry also appears to be used by adolescents with substantial drug histories. For example, the 16-year-old female who said kids just want to try new drugs reported that the first substance she used was tobacco at age seven and had her first drink of alcohol, Jack Daniels, on her own at age 11. She smoked at least two packs of menthol cigarettes and drank at least three, 40-ounce bottles of beer per day (7). A 20-year-old African American male started smoking cigarettes at 15, drinking 40-ounce bottles of beer at 16, and smoked at least one pack of cigarettes per day and three, 40-ounce bottles of beer on 15 of the last 30 days (10). All of the participants had smoked marijuana at least regularly before smoking fry sticks. Other substances consumed by these individuals include primos (marijuana joints plus crack or cocaine), cocaine, crack, heroin, inhalants, depressants, tranquilizers including Valium and Rohypnol, cold medicine (e.g., Nyquil), non-prescription cough syrup, and cough syrup with codeine.

Most participants could explain precisely how to roll a joint or to make a Swisher, although most dealers currently sell ready-made joints and Swishers. Participants stated, however, that the quality of ready-made joints and Swishers paled compared to those that they or their friends made. The following description of making Swishers was corroborated by at least 10 descriptions.

First, one must obtain a package of cigars. Swisher Sweets is the preferred brand among these adolescents because of its sweet taste; however, King Edward or Philly Blunt brands are acceptable substitutes. Minors either knew which convenience stores would sell to them, or usually could find adults—friends, acquaintances, or even strangers about to enter the store—to purchase cigars for them. Second, one slices a straight line down the cigar with a razor blade, opening the cigar to remove the tobacco. Third, once the tobacco is removed, one refills the cigar paper with marijuana one of two ways. A few of the smokers who were interviewed did not like the taste the tobacco residue imparts on the marijuana; these individuals re-rolled the cigar in reverse—having the outside of the newly formed cigar be the side of the paper that once touched tobacco. Most of those interviewed, however, simply re-rolled the cigar the way it was originally made and licked both edges to reseal the cigar.

To make a candyblunt, a cigar filled with marijuana plus codeine cough syrup (see also Elwood, 1997), participants either poured the syrup onto the marijuana before rolling the cigar, or they coated the outside of the paper once the cigar was re-rolled. If the latter method is used, the

cigar must be dried before consuming. Participants listed microwave cooking the cigar for 30 seconds, holding the cigar under a lighter, or simply waiting as means to dry the cigar. Adolescents who liked the combination but found the drying method too cumbersome reported simply drinking cough syrup while smoking the Swisher. Among the benefits of a syrup-dipped and dried Swisher marijuana cigar were the extended burning time, deeper relaxation, and euphoria.

How is Fry Consumed?

Fry is generally consumed in a small group of three to five people. As one participant said, "You don't want to be alone when you smoke this" (7). At least 10 participants expressly stated that they usually drink alcohol when they smoke fry. According to a 17-year-old Hispanic female, drinking beer "increases the numbing sensation" that embalming fluid and marijuana provide (5). Other alcoholic beverages mentioned include Cisco (fortified wine); Alizé, the brand name for a bottled blend of passion fruit juice and cognac; and "thug passion," Alizé self-mixed with Hennessy cognac (1-3, 6, 17-20). Alizé and thug passion were mentioned only by African Americans; beer, usually in 20- or 40-ounce bottles, was the most frequently mentioned alcoholic beverage consumed with fry, regardless of race/ethnicity. Marijuana was used extensively in fry; tobacco use was cited only as a substitute due to lack of money.

What are the Immediate Effects?

These extended periods of intoxication may be due not only to the embalming fluid and the number of comrades who shared it, but also to the fact that a treated joint or cigar burns more slowly than those that have not been treated.

Respondents report that the actual smoking of fry is not a pleasant experience. According to one participant, it "tastes like rubbing alcohol" (2) and "smells like gasoline" (5). Other descriptions included "nasty" (10), "dirty" (8), "like chemicals" (12), and "I just don't know, but I don't like it" (19).

Reported highs lasted between 30 minutes to one hour, "two hours if you don't share too much" (10). The high for a 20-year-old Hispanic male who smoked one fry stick by himself lasted five days (14). These extended periods may be due not only to the embalming fluid mixture and the number of comrades who shared it, but also to the fact that a joint or cigar treated in embalming fluid burns more slowly than one that was not treated, according to seven respondents. Respondents thus have longer opportunities to absorb the THC, solvents, and PCP.

Toxic psychosis, hallucinations and delusions, is a common effect of the PCP-embalming fluid-dipped marijuana combination (see also State of Connecticut, 1994 a&b). Hallucinating was the effect mentioned by 12 of the 20 participants in this study. They reported seeing "colors and designs" (1, 2, 3, 6, 12), and "things that aren't there" (10). Perhaps because fry makes one "messed up" and forgetful (5, 9, 10, 19), these adolescents found it difficult to describe their hallucinations in detail.

Negative effects of fry included feelings of panic, paranoia, and disorientation—one reason why participants indicated that fry should not be smoked alone.

Nevertheless, they mentioned seeing "really cool images" (15), such as a "yellow sky, purple clouds, [and] red trees" (6), "like fireworks" (18). Another description of these "really cool images" was seeing "light pinks and purples, yellows, and dots, which kept stretching like it all was chewing gum" (17). Participants admitted that the psychoactive effect was "a trip" (10), "like tripping . . . [an] altered reality" in which the "walls moved" (16). One 20-year-old Hispanic male put it succinctly: "It can't compare to LSD, though" (14). Although these participants listed and described hallucinations as one of the effects from smoking fry, not one suspected that there was a hallucinogenic psychoactive substance in the embalming fluid compound. Those interviewed attributed all additional effects—other than those normally associated with plain marijuana consumption—to the embalming fluid itself.

Negative effects of fry included feelings of panic, paranoia, and disorientation (6, 14, 15)—one reason why participants indicated that fry should not be smoked alone. Smoking fry in groups did not prevent respondents from engaging in embarrassing behavior, however. Four participants reported taking off their clothes and running naked down the street (1-3, 6). Intense anger was also cited: "I was hot, mad, aggravated, trying to hold back my frustration" (17). In response to this anger, respondents reported engaging in or witnessing serious physical confrontations (1-3, 6, 11, 17). A Hispanic female reporting attacking her mother with a knife while on fry; unable to restrain her, the young woman's family called the police. The girl awoke two days later in the Harris County Psychiatric Center, naked, restrained, and disoriented. She told her treatment providers that she had smoked embalming fluid. As neither she nor the treatment staff likely knew that fry also contained PCP, they did not prescribe anti-psychotic drugs for her, and the young woman had to endure her detoxification without assistance from prescription medication.

Smoking fry can also lead to losing consciousness (4). This effect may be why two respondents expressly described fry as a "dangerous drug" (20), "especially for a girl" (14). According to a Hispanic male, fry "can control a girl, more than roofies [Rohypnol]" (14). Two participants stated that fry heightens women's sexual appetites (6, 14), while one reported witnessing group sex with one female who had smoked fry (14). Moreover, one 19-year-old African American male participant reported that young women traded sex for fry sticks (6). Less frequently mentioned effects were making the brain hurt (6), making one feel methodical rather than angry (9), and numbing the entire body (11), although many participants reported numbing of the lips as a minor side effect from smoking fry.

What are the Short-Term Effects?

The most frequently mentioned short-term effect was blurred or impaired vision (4, 5, 17, 19, 20), a symptom that begins during the "high" and frequently endures into the next day. One participant stated that his depth perception was so impaired that he walked right in the path of a Cadillac. Apparently, he thought he was farther away from traffic than he actually was (17). Another short-term effect is a headache the day following fry consumption. According to participants, the headache is worse than one from a hangover, and more difficult to overcome (5, 11, 12). They are all too knowledgeable regarding why they endure headaches: "After all, I know why they call it fry—it fries your brain!" (2).

Increased forgetfulness the following day also was cited. This short-term memory loss was described as even more extensive than after smoking marijuana alone (1, 2, 5, 9). Vomiting, depression or sadness, and facial/bodily edema also were reported.

What are the Long-Term Effects?

In commonplace parlance, the long-term effects of smoking fry are not pretty. Participants recalled seeing long-term fry smokers who muttered to themselves as they walked in bizarre fashions (1, 3, 17, 18, 19). Such fry-impaired individuals also ceased their personal grooming habits and were dirty and disheveled. Five adolescents reported that smoking fry causes brain damage; two knew friends who were in mental health/mental retardation facilities because they had overdosed on fry use (9, 19). One friend had smoked enough fry sticks to consume three, one-ounce bottles of fry and was sent to a state mental facility in Rusk county.

Two additional long-term effects were that the embalming fluid "accumulates in the spinal cord" and makes the "back break down" (10). Apparently, it also "stops the maturation process" (11). Additional effects listed by the State of Connecticut include high fever, heart attacks, high blood pressure, kidney damage, destruction of muscle tissue, brain damage, coma, convulsions, coughing, pneumonia, anorexia, and death. Consistent with adolescents' optimistic bias regarding health beliefs, none of the respondents believed that they would suffer from any of these effects.

*Not the least of
the problems involved
with the consumption
of fry is that young
people do not know
exactly what they are
consuming.*

Discussion

The consumption of marijuana with a PCP-laced embalming fluid compound clearly has become problematic among adolescents in Houston. Not the least of the problems involved with the consumption of this substance is that young people do not know exactly what they are consuming. This may account for their surprise at "tripping" upon consuming fry, and for the frustration of treatment providers to care adequately for adolescents who either overdose or who present for treatment (Nelson, 1997b; Pestana, 1997; Taggart, 1997).

To recognize signs of fry consumption, parents, teachers, and social service providers may look for elevated levels of anger and forgetfulness among adolescents.

One positive note is that fry does not appear to be a gateway drug to other illicit drug use among these Houston adolescents. All participants had used at least tobacco, alcohol, and marijuana before smoking fry; many had experimented previously with other drugs including cocaine, crack, heroin, LSD or acid, and prescription medicines purchased on the street. This trend is different from the "illy" epidemic in Hartford, in which the substance was promoted to elementary school children as an introduction to drug use, according to Pestana (1997). Furthermore, illy was promoted by dealers as a marijuana cigarette laced with embalming fluid and PCP. In contrast to Houston users, at least Connecticut adolescents and children knew more exactly what they were smoking.

To recognize signs of fry consumption, parents, teachers, and social service providers may look for elevated levels of anger and forgetfulness among adolescents. Reports of increased fighting, and even physical signs such as bruises and sores may suggest the use of fry by adolescents. Clearly such adults should not attempt to handle episodic rages and physical violence independently. Such behavior should be handled as psychotic episodes, including informing law enforcement or health care providers that the individual likely has consumed a large amount of PCP.

Reports of group sex and of trading sex for fry sticks, while infrequent, is troublesome. Increased rates of syphilis, gonorrhea, and even HIV infection among teenagers in Houston has increased throughout this decade (Houston HIV Prevention, 1997). Increases in the use of fry and in the incidence of sexual intercourse in relation to the substance may facilitate the increased transmission of STDs, including HIV, among young people.

Study Limitations

There are two limitations regarding this study. First, readers should be advised that the small convenience sample used for this study might not reflect the use of fry among all adolescents in the Houston metropolitan area. Participants were mostly Anglo, Hispanic, and African American street youth recruited in the Montrose area, and African American adolescents from the Third Ward and South Park neighborhoods. These data may not be generalizable to other adolescents regardless of renegade or traditional lifestyles. However, these qualitative data do suggest an emerging drug trend; more extensive research may uncover whether Texas is poised for a fry epidemic similar to that experienced in Connecticut.

Second, reports of distributing embalming fluid could not be substantiated by any individuals actually engaged in such trading. This stage in the embalming fluid distribution process is surmised from reports by people who smoke fry and/or divert embalming fluid. As PCP is not a normal component in embalming fluid, and as street sellers and smokers

reported ignorance of PCP as an ingredient, it is only an assumption that the reported distributors on the Near North Side are the individuals who add PCP to the fluid before selling it to street dealers.

Implications

Implications for action should be tempered with the limitations mentioned above. Nevertheless, treatment alerts should be issued to drug treatment and detoxification providers that drug users who report smoking marijuana or tobacco soaked in embalming fluid likely also consumed PCP, even if they deny or do not report it. Such alerts also should include recommendations to treat extreme behaviors such as those mentioned above with anti-psychotic medications such as haloperidol and sedatives such as diazepam (Valium).

While it is unclear whether the use of fry has become so extensive that it warrants a broadly based campaign as in Connecticut, it is clear that education about this substance is necessary so that the general public is informed of this dangerous additive in some marijuana cigarettes. Marijuana smokers need to know that adulterated marijuana may contain another, hazardous substance that can put them at extreme, immediate risk of adverse effects.

*Additionally,
there is a need for
more stringent
controls of
embalming fluid
and its component
chemicals.*

At the very least, fry smokers who receive treatment should be informed that they also have consumed PCP. Many of the problems involved with smoking fry may stem from incomplete or misinformation. For example, one participant knew the dangers of smoking embalming fluid but did not know that fry was the same substance; none of the participants knew or cared about the ingredients in fry. Additionally, there is a need for more stringent controls of embalming fluid and its component chemicals. Nevertheless, this report serves as a first step toward informing the public about this dangerous pattern of use, and alerting medical and mental health professionals to provide appropriate treatment.

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Appendix A *Glossary of Slang Terms*

Acid:	Slang term for LSD, a potent hallucinogen.
Alizé:	Brand name of a bottled blend of passion fruit juice and cognac.
Blunt:	Generally refers to a cheap cigar in which the tobacco has been removed and replaced with marijuana. Also called Swisher, sweets, and Swisher Sweets. Many slang terms refer to the brand names of cheap cigars, such as Swisher Sweet, King Edward, and Philly Blunt.
Candy Blunt:	Marijuana blunt cigar laced with or dipped into codeine cough syrup.
Cisco:	Fortified wine.
Copp:	To get or obtain a psychoactive substance.
Cut:	A verb meaning to combine one substance such as powdered milk, with another to dilute the essential substance, e.g., cocaine.
Fry House:	A neighborhood house where individuals can buy drugs like fry. Some individuals hang around to smoke their purchase.
Fry:	Generic term describing marijuana cigarettes, marijuana laced cigars, tobacco cigarettes, or tobacco cigars soaked in embalming fluid laced with PCP. Also called wack, amp, water-water, formaldehyde, wetdaddy, and drank.
Fry Stick:	Marijuana cigarette or joint dipped in embalming fluid laced with PCP.
Fry Sweet:	Marijuana-laced cigar dipped in embalming fluid laced with PCP.

Hoodlum:	Another term for a gang member, or delinquent adolescent who affects gang dress or demeanor.
Illy:	Marijuana cigarettes or "joints" soaked in embalming fluid laced with PCP. These slang terms are associated with the Connecticut epidemic where use peaked between 1993-1994. Other terms used in Connecticut were ill, wet, crazy eddie, purple rain, clickem, and milk.
Joint:	Marijuana cigarette. Also called "squares."
PCP:	Also known as phencyclidine, a dissociative anesthetic and potent hallucinogen.
Pot:	Slang term for marijuana.
Primos:	Marijuana joint or blunt plus crack or powder cocaine.
Roofies, Roches:	Slang term for Rohypnol (flunitrazepam) a potent sedative or depressant that is ten times the strength Valium.
Special K:	Slang term for Ketamine, a dissociative anesthetic and hallucinogen, very similar to PCP.
Thug Passion:	Slang term for Alizé mixed with Hennessy cognac.
Trip or Tripping:	Noun or verb denoting a state of intoxication.

Additional Resource

Johnson, J., Maxwell, J., & Leitnerschmidt, M. (1997, October). *A dictionary of slang drug terms, trade names, and pharmacological effects and uses*. Austin, TX: Texas Commission on Alcohol and Drug Abuse.
<http://www.tcada.state.tx.us/research/slang>

Appendix B

Materials from the Connecticut Campaign

Note: The following materials were recreated from original materials received from Connecticut to improve readability.

**The State of Connecticut Department of Public
Health and Addiction Services Division of
Environmental Epidemiology and Occupational
Health Urges You**

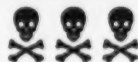
**NOT TO SMOKE ILLY OR ANY
OTHER SUBSTANCE THAT
CONTAINS EMBALMING FLUIDS**

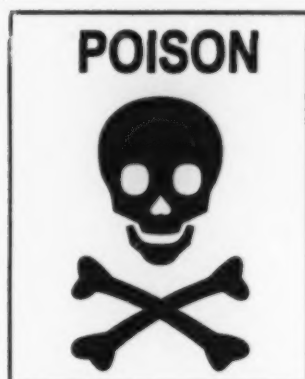
**For further information on toxicity of ILLY
CALL: (203) 566-8167**

or

**UConn Poison Control Center
(800) 343-2722**

*If you think you've been poisoned, go see a doctor
immediately.*





ILLY CONTAINS THE DRUG PCP WHICH IS POISONOUS!

What is PCP?

PCP, also called ANGEL DUST and/or CRYSTAL, is a chemical (phencyclidine) that veterinarians previously used to put animals to sleep.

What are the Health Effects of PCP Poisoning?

Hallucinations, paranoia, coma, convulsions, confusion, high blood pressure, brain damage, numbness, high fever, kidney damage, depression, staring, stops your heart, destruction of muscle tissue, explodes blood vessels in your brain, and death

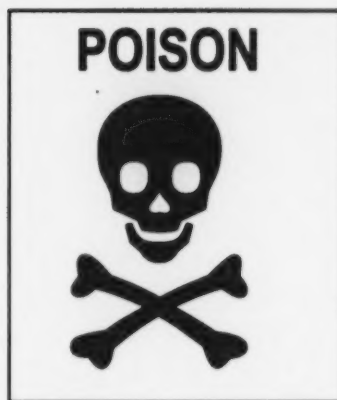
How Does it Affect Your Behavior?

PCP can make you do crazy things that can hurt you or other people. PCP can make you:

- ☠ Walk into traffic
- ☠ Violently attack your friends and family
- ☠ Resist help (from friends, family, or hospital care)
- ☠ Think everybody is out to get you
- ☠ Physically hurt yourself
- ☠ Commit suicide

How Can PCP Affect Your Unborn Baby?

Your baby can be *born addicted to PCP*. Your baby can be *born with birth defects*.



ILLY CONTAINS EMBALMING CHEMICALS THAT WILL POISON YOU!

What are They? Formaldehyde and methanol.

What are the Symptoms of Formaldehyde Poisoning?

☠ Pain, nausea, vomiting, anxiety, weak and rapid pulse, coma, collapse, and death from respiratory failure.

What are the Health Effects of Inhaling Formaldehyde?

Formaldehyde is similar to an acid. It burns when you inhale it.

- | | | |
|--|--|---|
| ☠ Coughing | ☠ Skin Rashes | ☠ Headaches |
| ☠ Dizziness | ☠ Nausea | ☠ Body Tissue Deterioration |
| ☠ Nose Bleeds | ☠ Psychological Effects | ☠ Asthma |
| ☠ Bronchitis | ☠ Pneumonia | ☠ Permanent Lung Damage |
| ☠ Kidney Damage | ☠ Permanent Brain Damage | ☠ Staring |
| ☠ Inflammation and Sores
in Throat, Nose, and
Windpipe | ☠ Irritation to Eyes, Nose and
Respiratory System | ☠ Your Children Can Have <u>Birth
Defects</u> |
| | ☠ Cancer | ☠ Death |

What are the Symptoms of Methanol Poisoning?

☠ Vomiting, coma, depression, difficulty breathing, headaches, leg cramps, anorexia, dizziness, weakness, dimness of vision, abdominal cramping, cold sweats, convulsions, and death.

What are the Health Effects of Inhaling Methanol?

☠ Shortness of breath, dizziness, cold sweats, weakness, roaring in the ears, unsteady walking, double vision, clouded vision, blindness, and death.

ILLY CONTAINS EMBALMING FLUIDS AND ANGEL DUST THAT WILL POISON YOU!

What are the Health Effects of Smoking ILLY?

- | | | |
|--|---|-------------------------|
| ☠ Depression | ☠ Skin Rashes | ☠ Headaches |
| ☠ Dizziness | ☠ Nausea | ☠ Paranoia |
| ☠ Nose Bleeds | ☠ Sudden Death | ☠ Asthma |
| ☠ Bronchitis | ☠ Pneumonia | ☠ Permanent Lung |
| ☠ Kidney Damage | ☠ Permanent Brain Damage | Damage |
| ☠ Sores in Throat, Nose,
and Windpipe | ☠ Irritation to Eyes, Nose, and
Respiratory System | ☠ Staring |
| ☠ Cancer | ☠ Hallucinations | ☠ Your Unborn Child May |
| ☠ Convulsions | ☠ Violent Behavior | Develop Birth Defects |
| ☠ Shortness of Breath | | and Addiction |

How Does It Affect Your Behavior?

The **ANGEL DUST** in ILLY can make you do crazy things that will hurt you or other people. **ANGEL DUST** can make you:

- ☠ Walk into traffic
- ☠ Violently attack your friends and family
- ☠ Resist help (from friends, family, or hospital care)
- ☠ Think everybody is out to get you
- ☠ Physically hurt yourself
- ☠ Commit suicide

How Can Angel Dust Affect Your Unborn Baby?

Your baby can be born addicted to Angel Dust and can be born with birth defects.

CONNECTICUT CLEARINGHOUSE

Beware of Illy

The State of Connecticut Department of Public Health and Addiction Services has recently issued a warning about the dangers of Illy. Illy is the street name for a mixture of marijuana and embalming fluid. Embalming fluid has also been used in combination with tobacco, crack, and methamphetamine. The use of embalming fluid as a drug has been reported since the late 1980's.

Embalming fluid is a combination of formaldehyde and methanol, both of which can cause serious health problems or death. The symptoms of formaldehyde poisoning are:

- | | |
|-----------------------|---------------------------------|
| ■Pain | ■Nausea |
| ■Vomiting | ■Anxiety |
| ■Coma | ■Collapse |
| ■Weak and Rapid Pulse | ■Death from Respiratory Failure |

Formaldehyde is similar to an acid. It burns when you inhale it.

The symptoms of methanol poisoning are:

- | | |
|-----------------------|---------------------|
| ■Vomiting | ■Dizziness |
| ■Coma | ■Weakness |
| ■Depression | ■Dimness of Vision |
| ■Headaches | ■Cold Sweats |
| ■Leg Cramps | ■Convulsions |
| ■Anorexia | ■Death |
| ■Difficulty Breathing | ■Abdominal Cramping |

The worst of many health effects of inhaling formaldehyde include kidney damage, permanent brain and lung damage, cancer, and death. Inhaling formaldehyde can also contribute to birth defects.

The health effects of inhaling methanol are shortness of breath, dizziness, cold sweats, weakness, roaring in the ears, unsteady walking, double vision, clouded vision, blindness, and death.

For more information, contact the Connecticut Clearinghouse at 1-800-232-4424. The Clearinghouse, a program of Wheeler Clinic funded by the Department of Public Health and Addiction Services (DPHAS), provides free information about alcohol, tobacco, other drugs, and related topics to citizens of Connecticut.

334 Farmington Lane - Plainville, CT 06062 ■ 1-800-232-4424

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH AND ADDICTION SERVICES

April 12, 1994

Dear Emergency Department Director:

RE: PCP makes a Comeback as "Illy," "Wet," "Crazy Eddie," "Purple Rain," and "Milk" in Connecticut.

Use of a street substance principally called "ILLY" is on the rise in CT. To determine what the substance contained, the CTDPHAS analyzed two samples of the substance and found that it contained formaldehyde, methanol, and phencyclidine (PCP, angel dust). The substance is often mixed with mint leaves and marijuana and is smoked in hollowed out cigars. While the specific effects of this combination is unknown, the toxicology of PCP, formaldehyde, and methanol are well known. Use in Connecticut is on the rise principally in children between the ages of 12 and 17. There is one suspected death.

Health Effects of Inhaling Formaldehyde and Methanol

Highly irritating to the upper respiratory tract. May cause inflammation to linings of the nose, throat, lungs resultant bronchopneumonia or pulmonary edema. Necrosis can result from repeated inhalation. Other symptoms include nausea, nose bleeds, and headaches. Death can also result. The primary cause of death from formaldehyde and methanol poisoning is severe acidosis.

Major Clinical Presentations of PCP Toxication

Acute Brain Syndrome: disorientation with confusion, lack of judgement, inappropriate affect, loss of recent memory. Bizarre repetitive speech or screaming and violent behavior. Symptoms last from several hours to three days in most patients.

Toxic Psychosis: hallucinations and delusions associated with violence agitation, nudism, and other bizarre effects.

Catatonic Syndrome: A combination of posturing and rigidity, psychosocial withdrawal, mutism, staring, and stupor.

Coma: usually preceded by accute brain syndrome, mild coma of less than two hours durations, moderate coma up to 24 hours, or severe coma persisting longer than 24 hours.

Complications: Grand mal seizures, hyperthermia, rhabdomyolysis, renal failure, stroke, trauma-prone behavior, and perinatal complications (i.e., developmental abnormalities).

Treatment

Emergency stabilization and standard supportive care. Benzodiazepines such as diazepam or ativan are recommended for chemical sedation.

Dr. Marc Bayer, Medical Director of the Connecticut Poison Control Center, is available for immediate consultation at 679-4540 during the day and 1-800-343-2722, evenings and weekends.

Sincerely,

Edith Pestana, MPH
Epidemiologist
Environmental Epidemiology
& Occupational Health
Dept. of Public Health
and Addiction Services

Marc Bayer, MD
Chief, Medical Toxicology
UConn Health Center

CONNECTICUT DEPARTMENT OF PUBLIC HEALTH AND ADDICTION SERVICES
150 Washington Street ■ Hartford, CT 06106

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